REMARKS/ARGUMENTS

This Response to Office Action is being submitted in response to the Office Action dated December 10, 2009. Claims 10-13 and 21-22 are original. Claims 1-9 and 15-19 were previously presented. Claims 1 and 14 are currently amended. No claims are hereby added or canceled. Claims 1-22 are and remain pending in this application and claims 1-22 stand rejected. Reconsideration and reexamination are respectfully requested.

Specification

The Office Action states that the title of the invention is not descriptive. Office Action of 12/10/08, p. 2, para. 4. However, Applicants respectfully submit that the title describes the Applicants' claimed development, while being as short and specific as possible, as required by 37 CFR 1.72. Even so and in the interests of speeding prosecution, Applicants have hereby amended to further narrow the title. Applicants also note that such title amendments have no actual or intended impact on the scope or interpretation of the claims. If the Examining Attorney has a suggestion as to further narrowing or a substitute title, see MPEP 606.01.01, the Applicants would welcome suggestions as to the same.

Rejections Under 35 U.S.C. § 112

The Office Action notes that Claim 14, which recites the limitation "the bridge" in line 7, has insufficient antecedent basis. Applicants have amended Claim 14 and submit that Claim 14 is in proper form and not subject to a Section 112 rejection.

Rejections Under 35 U.S.C. § 103(a)

Claims 1, 3, 6, 9, 10, 13, 14, 16, 19 and 22 stand rejected under 35 USC 103(a) as purportedly being unpatentable over Tsukakoshi et al (U.S. Patent No. 5,018,133; hereinafter "Tsukakoshi") in view of Bodmer (U.S. Patent No. 6,263,260; hereinafter "Bodmer"); the remainder of the claims stand rejected as purportedly being

unpatentable over Tsukakoshi and Bodmer in combination with additional references set forth hereinbelow. Specifically, the Examiner has rejected these claims, particularly claim 1, stating that "it would have been obvious to a person of ordinary skill in the art at the time of the invention" to "modify the invention of Tsukakoshi, and have the features, as taught by Bodmer, thus providing for a home and building automation system that allows for considerable energy saving." See Office Action of 12/10/08, p. 8, para. 4.

Applicants respectfully traverse the allegation that Applicants' developments would be obvious to one skilled in the art as follows.

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F. 3d 977, 988 (Fed. Cir. 2006). The law of obviousness requires that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. See KSR International Co. v. Teleflex Inc., 550 U.S. 398, 82 USPQ2d 1385 (2007) which specifically retained the teaching, suggestion, motivation test, and see, e.g., MPEP 2143, inter alia; see also In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (concentrating upon what prior art actually 'taught', 'expressed', 'conveyed', and/or 'spoke of').

Combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art. KSR International Co. v. Teleflex Inc., 550 U.S. 398, 82 USPQ2d 1385 (2007); and see, United States v. Adams, 383 U.S. 39,42-43, 51-52, 148 USPQ 479, 480, 483-84 (1966) (stating that "[d]espite the fact that each of the elements . . . was well known in the prior art, to combine them as did Adams required that a person reasonably skilled in the prior art must ignore the teaching away of the prior art . . . ."). "When the prior art teaches away from combining certain known elements, discovery of successful means of combining them is more likely to be nonobvious." KSR v. Teleflex, supra, at 1395.

Applicants' development concerns a bridge apparatus for use in building automation systems, with various elements, such as in some implementations the multiple-bridge looped subnet feature, operable to facilitate the uninterrupted transmission of information between and among the elements of the building automation system (claims 1, 9, 14).

Tsukakoshi is directed to a system in which one main LAN and a plurality of sub-LANs are connected heirarchically through bridges (abstract); namely, through primary and secondary bridges (root, designated and back-up bridges communicating with each other but intentionally not identical to each other) in a tree structure, which is contrary to the Office Action assertion that Tsukakoshi discloses a bridge apparatus which may be used in or for a building automation system, particularly a looped subnet type of building automation system.

Bodmer is directed to a very specific type of process which is used to tune a control system to manage energy savings or comfort level, perhaps in a building automation scenario, though not involving a bridge or a subnetwork in any sense similar to that of Applicants' here, nor even that of Tsukakoshi's.

With respect to the Office Action's rejection of Claims 1, 2, 3, 6, 9, 10, 13, 14, 16, 19, and 22, Applicants note that Tsukakoshi teaches a networking system with a spanning tree structure and plurality of LANS and plurality of sub-LANS (abstract). For executing the Tsukakoshi hierarchical routing, Tsukakoshi specifically relates, at Col. 1, line 46-50, "it is presumed that the form of connecting the LANs in the network with each other has a tree structure i.e. no loop is formed by several LANs at any part of the network." Indeed, it will readily be appreciated that Tsukakoshi actually effects a logical removal of any arguable loops in its intentional rendering of any bridges connecting sub-LANS to a "back-up" bridge mode where as with "backup bridges (3BC, 3EF) indicated by X marks in FIG. 3 [] don't effect relay operation of a frame" to thus create "a tree-like network, in which only one communication path exists between any two terminals." Tsukakoshi, col. 4, lines 36-39. This is because for the Tsukakoshi system, "if several LANs form a loop with each other, there can exist plural paths between two terminals,

which gives rise to a problem that a plurality of the same frames are produced in the network." Tsukakoshi, col. 1, lines 50-54.

Applicants' bridges are, on the other hand, on the same LAN and each manages one sub-LAN (CAN) network, even if one each is disposed on either end of a subnet loop. Applicants' system is directed to communications to and from the end building automation devices via a single bridge, even if there are bridges on either end of a subnet loop, and Applicants' system does not therefore focus on bridge to bridge routing. A tree structure, such as the one described in Tsukakoshi, teaches the bridge to bridge routing resulting in the formation of multiple branches or subnetworks, bridge to bridge (root bridge to designated and/or back-up bridges); Applicants' system is essentially flat, having one main backbone with multiple bridges attached directly to the backbone, not to each other. Because Tsukokoshi is about bridge to bridge communications, there is no teaching or suggestion in or from Tsukokoshi for a direct bridge connection between a LAN and a subnetwork of building automation devices.

With respect to Claim 1, regarding the bridge apparatus, in light of Tsukakoshi and Bodmer; the bridge of present claim 1 is set to connect via "a first network controller ... to a local area network"; while also connecting via "a second network controller ... to a subnetwork" on which subnetwork are one or more building automation devices. Tsukakoshi does not have any such connection of building automation devices, nor does he teach or suggest that his system may be used in or with any building automation system (contrary to the suggestion of the Office Action, there is no indication that the devices 4 of Tsukakoshi could substituted with building automation devices). Moreover, Bodmer discloses a process which is used to tune a control system to manage energy savings or comfort level. The rejection on the combination of references is based on combining a home automation system (Bodmer) and a network (Tsukakoshi). Tsukakoshi teaches the effective removal of loops in subnetworks and thus does not teach toward combination with Bodmer or any building automation art. Thus, since Tsukakoshi fails to teach what Applicants are disclosing, as set forth above,

this combination has no legal basis; i.e., there is no teaching, suggestion or motivation for the combination.

Moroever, Bodmer's teachings of asserted improvements in "building automation" through use of software and presence and activity monitoring sensors is also not a teaching or suggestion or motivation toward either: Applicants' present developments (other than they both mention an automation system), or toward any arguable combination with Tsukakoshi. The teaching, suggestion or motivation must come in or from the art, and does not, nor was it even suggested as coming from the art. This is not sufficiently suggestive of either any possible combination with Tsukakoshi nor of the ultimate result achieved by Applicants here.

In a slightly different view of the instant case, and per KSR, a person of ordinary skill in the art having common sense at the time of the invention would not have reasonably looked to Bodmer to solve a problem already solved by Tsukakoshi, and moreover, neither would that person skilled in the art have looked from either one of Bodmer or Tsukakoshi to find Applicants' presently claimed solution.

Note, a combination of references cannot render the combined apparatus or system inoperative, or change the principle of operation thereof, or render it less than satisfactory for its original purpose. See MPEP 2143.01. If a proposed modification would render the prior art system being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

For the reasons given, such would be the case in any asserted combination of Tsukakoshi with Bodmer. Certainly, Bodmer involves a building automation system; however, Tsukakoshi teaches no such application, and Bodmer doesn't cure this lacking. It is not suggested how one would take any of the parts of Bodmer and combine these with Tsukakoshi to cure this omission. Bodmer doesn't have any "bridges" nor any subnetworks; thus, where would one draw the line as to what should

be included or substituted from Bodmer into and for the alleged "terminal devices 4" of Tsukakoshi?? As in Gordon, supra, the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F.2d at 813, 123 USPQ at 352.

It appears that the Office Action is stating that all configuration information is the same and that the since Tsukakoshi has routing information, this is the same as what Bodmer requires, and/or that the sensors or like devices of Bodmer would merely "plug and play" in the system of Tsukakoshi. However, this situation is not one of simple substitution, nor is it one of a simple 'upgrade'. See, cf., KSR, 82 USPQ2d at 1399 (discussing 'upgrading Asano with a sensor.') Although in KSR, a simple upgrade was viewed as obvious (where the Court concluded that it would have been obvious to upgrade Asano's fixed pivot point adjustable pedal by replacing the mechanical assembly for throttle control with an electronic throttle control and to mount the electronic sensor on the pedal support structure). Applicants' presently claimed developments involve far more than a simple addition, replacement, mounting or an upgrade. The innovation in Applicants' claims includes, at least in part, the relationships among the bridge and the building automation devices, and at the least making them communicative one with the other. Simply adding the cited elements of Bodmer on top of the system of Tsukakoshi would fail to achieve Applicants' end results. Tsukakoshi teaches the making of bridges communicate with each other. Bodmer teaches the communication of sensors to a central processor without a bridge discussed. Modifications far beyond those taught by Bodmer would be required to enable the bridges of a building automation system of the type claimed by Applicants.

Thus, Applicants respectfully submit that the rejection of the independent claims of the disclosure falls short. Claim 1 is thus allowable. Reconsideration and withdrawal of this rejection is thus respectfully requested.

With respect to Claims 2 and/or 3, regarding the assigning and/or communication of configuration information, Tsukakoshi (fig 1 and 2, col 6 lines 43-50 and col 7 lines 20 -25) describes how bridges communicate routing metrics to each other, and not how to assign or update configuration information to a bridge and then to an automation device.

With respect to Claim 6, regarding "vacation" mode, in which the Office Action rejection again relies on Bodmer and Tsukakoshi, Applicants claim a "vacation mode" of operation that provides for the building to appear lived-in even when the user is not present, i.e., it is typically used to make the building appear as though it is being occupied. In this mode, the bridge may replay a series of preprogrammed or recorded events while the owner is on vacation. The Bodmer process fails to do this. The Bodmer process merely adapts to usage (to save energy) when the homeowner is away, but this is not the behavior covered in Applicants' disclosure.

With respect to Claim 9, regarding the failover bridge, the Office Action fails to specifically point out a backup bridge device anywhere in the rejection. The Applicants' bridge is unique, and not like a Tsukakoshi type routing/bridge device. The end user can configure the system with multiple bridges for redundancy and to eliminate a possible single point of failure in the Applicants' building automation system. Applicants' bridges may be at the opposite ends of a CAN network detecting whether the CAN network is operational. This employs a true CAN bus architecture with multiple devices attached to the same wire, unlike the device in Tsukakoshi which does not employ such architecture and indeed is a subnet loop which is what Tsukakoshi is effectively teaching the removal of by essentially de-activating any loops in its tree structure (to eliminate the "a problem that a plurality of the same frames are produced in the network." Tsukakoshi, col. 1, lines 50-54.).

With respect to claim 10, regarding a physical break in network, Tsukakoshi (Fig 1 6A to 6C, 3AD to 3EF couple sublans to LANs) shows possible link/device recovery from failure. However, Tsukakoshi fails to teach how to recover from a physical break in

communications within a sublan. In Applicants' development, the CAN bus can break and each bridge can route packets from all devices with which they can communicate.

With respect to Claim 13, regarding a plurality of subnetworks connected by a plurality of bridges, Applicants' disclosure has a high speed LAN and a low speed LAN. It does not concern a hierarchy of bridge devices as Tsukakoshi describes.

With respect to Claim 14, regarding configuring an automation device in the subnetwork, Tsukakoshi describes a simple passing of messages, or sending of routing messages, through the LAN, to configure routing between bridge devices. Applicants are claiming the sending of scripting data, i.e. program code, which is kept on the bridge and uploaded to specific automation devices as needed. For example, in Applicants' development, by the local program code on the bridge, the whole or a part of the automation system may be reconfigured or a single one or more automation device(s) may be reconfigured if a single part fails, e.g., if for example, a keypad or a dimmer fails. Thus, where the Applicants' bridge configures an automation device by "reprogramming" switches, dimmers, and the like, the Tsukakoshi/Bodmer combination rejection fails. Tsukakoshi 'learns' routing information and Bodmer learns usage information. Tsukakoshi sends learned routing data between similar devices. Bodmer collects information from sensors and the like, then uses the data to adjust settings. However, Bodmer fails to support reprogramming through uploading of programs directly to sensors etc. Applicants' development uses programming to reconfigure the system, then uses the bridge to send this information to the devices on the system. In the least there is no teaching, suggestion or motivation for combining the very different disclosures of Bodmer and Tsukakoshi, nor is there any success likely from such a combination.

With respect to Claim 22, regarding failover, Tsukakoshi teaches a method for rerouting packets by using multiple bridges. Applicants' development employs a very specific method of failover recovery. It is applicable, in an example, to the physical

failure of the CAN bus. If the CAN bus should fail, Applicants' system may still communicate with the devices on either side of the physical CAN bus break.

With respect to Claim 16, regarding using the LAN to receive updated configuration information to send to the automation device, the cited references fail to provide grounds for an obviousness rejection. None of the references in Tsukakoshi describe how terminal devices could be updated with configuration information. The Office Action appears to state that by merely replacing terminal devices with Bodmer devices, this can be achieved. However, this is not the case. See discussion of KSR, supra. Even so, it is not stated that the sensors described in Bodmer are reprogrammable. Again, Bodmer is merely directed to a method of controlling a system using sensor feedback and a computer. Applicants use the main network, i.e. the Ethernet, to send the configuration information to the bridge which then sends it to the suitable automation devices (dimmers, switches etc) over the subnet (e.g., a CAN subnet).

With respect to Claim 19, regarding vacation mode, please see the remarks and arguments previously presented hereinabove for claim 6.

With respect to Claims 2 & 15, regarding dynamic addressing, Razzaghe-Ashrafi, U.S. Patent No. 6,330,715, describes the use of DHCP which is a standard for IP address assignment. However, Applicants' system discloses using a CAN network, which does not use the IP protocol. Implementing DHCP (RFC 2131) on a CAN system, if even possible, would not make sense for Applicants' system. The reference cited does not teach how someone could implement DHCP on a CAN system. Applicants' disclosure includes its own address assignment protocol which is administered by the bridge and addresses assigned are communicated to Applicants' application so that Applicants' development can generate scripts, aka programs, which run on the automation devices. In any case, there is no teaching, suggestion or motivation for combination of Razzaghe-Ashrafi with either or both of Tsukakoshi or

Bodmer, and thus, no rationale provided for achieving the end result proposed in the Office Action for claims 2 and 15.

With respect to Claims 4 and 17, in which Applicants' bridge maintains a map of the automation system, this is rejected in and by the Office Action because Foscaneanu, U.S. Patent No. 5,828,666, describes an access module which keeps a point of presence or 'map'. This does not accurately capture Applicants' usage of the word map. The Applicants' bridge keeps a database, or table, of all of the modules on the system along with their addresses, commissioning status and other information so that they can be updated and replaced. Nevertheless, there is no teaching, suggestion or motivation for combination of Foscaneanu with either or both of Tsukakoshi or Bodmer, and thus, no good reason provided to obtain the product proposed in the Office Action for claims 4 and 17.

With respect to Claims 5 and 18, regarding updating the map when devices are added, Kuechler, U.S. Patent No. 4,811,199 describes a 'correction map' to update a 'topological map'. This is again an inaccurate and confusing use of the word map vis-à-vis Applicants' development. Applicants' bridge uses a database, or map, to keep track of new devices when added to the network. The bridge assigns an id or address to the device and adds it to the database. Nonetheless, there is no teaching, suggestion or motivation for combination of Kuechler with either or both of Tsukakoshi or Bodmer, and thus, no rationale provided for achieving the end product proposed in the Office Action for claims 5 and 18.

With respect to Claim 7, regarding firmware updating, Craig, U.S. Patent No. 6,266,809, describes 'a method for updating firmware in a network computer which initializes using a boot image comprising a standard operating system on a network server'. Applicants' bridge updates the firmware of dimmers, switches, etc using a mechanism which does not involve a network server or an operating system on the control devices. Even so, there is no teaching, suggestion or motivation for combination

of Craig with either or both of Tsukakoshi or Bodmer, and thus, no rationale provided to obtain the end product proposed in the Office Action for claim 7.

With respect to Claims 8 and 20, regarding resetting a device on the subnetwork, Layton, U.S. Patent No. 6,829,478, discloses a monitoring system that allows for resetting of alarms and other devices. It appears that Layton tries to describe how alarms are cleared or removed from an alarm state. It does not include any details that would indicate it is what Applicants' disclosure provides. The bridge on the Applicants' system may 'Hard Reset' any of the attached devices on the CAN bus. It does this through a developed signaling technique that causes the device, i.e. a dimmer or a switch, to restart as if just powered on. In any case, there is no teaching, suggestion or motivation for combination of Layton with either or both of Tsukakoshi or Bodmer, and thus, no rationale provided to obtain the end product proposed in the Office Action for claims 8 and 20.

With respect to Claim 11, wherein the subnetwork is a CAN bus, Bird, U.S. Patent No. 6,728,268, describes a method and apparatus to transmit IP datagrams without interfering with CAN devices. Bird appears to refer to a system and a method, but not to any apparatus. The Bird reference explains how to join an IP and CAN, or other application specific bus, to allow the IP datagrams to be encapsulated into CAN packets and sent between IP hosts. Such a mere teaching of such a protocol, does nothing in the way of any alleged combination of Bird with Bodmer and/or Tsukakoshi, as these would still fail to achieve Applicants' devices/systems. Nevertheless, there is no teaching, suggestion or motivation for combination of Bird with either or both of Tsukakoshi or Bodmer, and thus, no rationale provided to obtain the end product proposed in the Office Action for claim 11.

With respect to Claim 12, wherein the local area network is an Ethernet network, Bennet, U.S. Patent No. 5,666,359, describes a repeater for exchanging data between devices. It appears that the repeater is designed to connect at least 2 high speed networks, each with a different protocol. Applicants' bridge sends specific packets, i.e.

frames, from one network to the other. It is not a general purpose repeater. Applicants' development also differs in that it can, i.e., is able, in an implementation connect a high speed (Ethernet) network to a low speed application specific (CAN) network. Nevertheless, there is no teaching, suggestion or motivation for combination of Bennet with either or both of Tsukakoshi or Bodmer, and thus, no rationale provided to obtain the end product proposed in the Office Action for claim 12.

With respect to Claim 21, regarding fault isolation in the subnetwork, Gurer, U.S. Patent No. 7,120,819, describes a method of fault diagnosis. It appears that this method relies on the communication of fault data between bridges. This is not Applicants' system. In Applicants' building automation system, it is possible to have a bridge at each end of a CAN bus. Each of the bridges can detect the presence or absence of devices and the lack of communication over the bus and reroute data accordingly. They are not dependent on communication of fault data between bridges. Nevertheless, there is no teaching, suggestion or motivation for combination of Gurer with either or both of Tsukakoshi or Bodmer, and thus, no rationale provided to obtain the end product proposed in the Office Action for claim 21.

Applicants submit that Applicants' claims 1-22 are believed to be allowable at least, for the same reasons set forth above for claim 1 in that they contain limitations not taught or suggested by Tsukakoshi, Bodmer, or other cited references. Reconsideration and withdrawal of these rejections are thus also respectfully requested.

CONCLUSION

Applicants note that all rejections are obviated or traversed and respectfully request that they thus be withdrawn. A timely Notice of Allowance is requested to be issued in this case. Applicants believe that other than the extension of time fees (which are attached), no other fees or petitions are due with this filing. However, should any

such fees or petitions be required, please consider this a request therefore and authorization to charge Deposit Account No. 02-2093 as necessary.

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Respectfully submitted,

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